

FERC, NERC and Regional Entity Staff Report: Winter Storm Elliott Recommendations – Progress Summary

Overview

On Nov. 7, 2023, FERC and NERC released the final report on Winter Storm Elliott. The 167-page report recommends the completion of needed cold weather reliability standard revisions initially identified after 2021’s Winter Storm Uri and improvements to reliability for U.S. natural gas infrastructure.¹

Included in this report is a PJM status update on action items associated with the recommendations included in the Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott (FERC, NERC and Regional Entity Staff Report).²

Many of the NERC/FERC Inquiry recommendations impact entities outside of PJM as provided in PJM’s Summary of FERC/NERC Inquiry and presented at the Dec. 7, 2023, PJM Operating Committee Meeting.³ PJM actions listed contain PJM’s support of the recommendations and in **many instances will not be a one-to-one match** due to the intended impacted entity and/or the nature of the recommendation. Or in other words, more specific actions will have been taken, or need to be taken, by the “impacted” entity. Where applicable, PJM recommendations and action items following Winter Storm Elliott (WSE) have been identified throughout this progress summary. Please reference the most recent PJM WSE Recommendations – Progress Summary⁴ for current updates and status.

FERC recently created a dashboard to track and provide updates to the status of recommendations that have come from the FERC-NERC winter storm analysis.⁵ The following provides the status of each of the recommendations as it relates to PJM’s work and support associated with the recommendations.

¹ [FERC, NERC Release Final Report on Lessons from Winter Storm Elliott](#)

² [FERC, NERC Release Final Report on Lessons from Winter Storm Elliott](#)

³ [PJM December 7, 2023, Operating Committee Agenda Item 10](#) (PDF)

⁴ **PJM Winter Storm Elliott Recommendations** (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > [Associated Materials](#))

⁵ [FERC, Reliability Spotlight: Cold Weather Preparedness](#)

Winter Storm Elliott Recommendation Status as of Aug. 22, 2024

FERC Recommendation 1a	
A. Generator Cold Weather Reliability Prompt development and implementation of the remaining recommended revisions from 2021 Report Key Recommendation 1 to strengthen generators' ability to maintain extreme cold weather performance.	
Impact: Generation Owners	
SUMMARY OF PJM ACTIONS:	
<ul style="list-style-type: none"> The 2021 Report Key Recommendation 1 is related to NERC Reliability Standard revisions/creation specific to generation resource freeze protection. PJM is active in the Standards Development Process and is engaged with NERC registered ISOs/RTOs in providing NERC feedback on the winterization projects. PJM issues generation resource data requests in order to collect cold weather data in order to update its operating plans during periods of extreme cold weather, such as: Annual Fuel and Emissions Data Request; Cold Weather Preparation and Checklist; and Fuel and Non-Fuel Consumable Data Request. Additional PJM cold weather related actions are included throughout this report. 	Complete
<ul style="list-style-type: none"> Ongoing engagement with Generator Owners ahead of Winter 2023-2024: PJM participation in NERC's one-on-one Cold Weather Preparedness Small Group Advisory Sessions; PJM presented at the September 7, 2023 NERC Webinar: Preparation for Cold Weather (PDF) conducted on Sept. 7, 2023; PJM Operating Committee, System Operating Subcommittee, Meeting & Reliability Standards & Compliance Subcommittee September/October 2023: Generation Resource Cold Weather Preparation (PDF); November 2, 2023, Winter Emergency Procedures Drill (PDF) and Winter Emergency Drill Review (PDF) 	Complete
<ul style="list-style-type: none"> PJM Manual-14D Generator Operational Requirements⁶ Revision 63: Section 7.5.2: Generation Resource Preparation and Cold Weather Checklist – Added requirement for all generation resources to prepare resources for cold weather operation Attachment N: Cold Weather Checklist – Added additional winter preparation guidance for combustion turbine intake preparation based on NERC Lessons Learned – Add additional guidance applicable to inverter-based resources – Added other best practices based on industry events 	Complete
<ul style="list-style-type: none"> Annual Generation Resource Cold Weather Preparation⁷ presentations conducted prior to and in preparation of the winter season. 	Complete

FERC Recommendation 1b	
A. Generator Cold Weather Reliability Identify highest risk units during extreme cold weather and work with Regional Entities to perform cold weather verifications of those generating units.	
Impact: NERC and Regional Entities	
SUMMARY OF PJM ACTIONS:	
<ul style="list-style-type: none"> Participate with Region(s) in visits to generators to assess winter readiness status, plans and best practices 	Ongoing
<ul style="list-style-type: none"> Support NERC and Regional Entities in identifying resources that are at the highest risk during extreme cold weather. 	Ongoing

⁶ [PJM Manual 14D, Generator Operational Requirements](#) (PDF)

⁷ [Example Generation Resource Cold Weather Preparation presentation](#) (PDF)

FERC Recommendation 1c	
A. Generator Cold Weather Reliability Assess freeze protection measure vulnerability and perform targeted cold weather verifications pursuant to a risk-based approach.	
Impact: Generation Owners, NERC and Regional Entities	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Participate with Region(s) in visits to generators to assess winter readiness status, plans and best practices. 	Ongoing
<ul style="list-style-type: none"> Analyze (resources) Cold Weather Operating Limit (CWOL) and (NERC registered) Extreme Cold Weather Temperature (ECWT) and resource performance. 	Ongoing

FERC Recommendation 1d	
A. Generator Cold Weather Reliability Conduct engineering design reviews to evaluate: <ol style="list-style-type: none"> Accuracy and completeness of existing design information/cold weather operational thresholds Existing freeze protection measures Design features to address cold weather and freezing conditions Impact of modifications/additions to documented operating temperature limits Modifications/additions resulted in new generator cold weather critical components Impact a unit's "cold" versus "hot" status has on its design limits Generating unit's operating characteristics <p><i>*Note: GOs that experienced outages, derates or failures to start above their documented operating temperature limits</i></p>	
Impact: Generation Owners	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Review and update Cold Weather Preparation Guideline and Checklist for resources identified at highest risk during extreme cold weather (Manual 14D Revision 64) 	Complete
<ul style="list-style-type: none"> PJM provides annual Generation Resource Cold Weather Preparation⁸ presentations conducted prior to and in preparation of the winter season. 	Complete
<ul style="list-style-type: none"> Participate with Region(s) in visits to generators to assess winter readiness status, plans and best practices 	Ongoing
<ul style="list-style-type: none"> Analyze (resources) Cold Weather Operating Limits (CWOL) and Extreme Cold Weather Temperature (ECWT) 	Ongoing
PJM Winter Storm Elliott Recommendations (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > Associated Materials)	
<ul style="list-style-type: none"> Enhance the generator cold weather checklist and cold weather operating limit reporting. – <i>Work Area: Resource Performance</i> 	

FERC Recommendation 1e	
A. Generator Cold Weather Reliability Conduct operational/functional testing of "active" freeze protection systems.	

⁸ [Example Generation Resource Cold Weather Preparation presentation](#) (PDF)

FERC Recommendation 1e	
Impact: Generation Owners	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Update PJM Manual 13 Emergency Operations Revision 93. Added step under Section 3.3.1 Cold Weather Advisory: Test and validate that freeze protection systems are functional and ready to operate to protect plant equipment that is prone to freezing. 	Complete

FERC Recommendation 1f	
A. Generator Cold Weather Reliability	
Communicate low temperature limits, and changes to those limits, to their Balancing Authority and Reliability Coordinator on a real-time basis.	
Impact: Generation Owners	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> GO communication of low temperature limits plus changes to those limits to the BA and RC on a real-time basis. Prior to Winter 2022/2023, PJM added Manual 13 Emergency Operations: Section 3.3.1 Cold Weather Advisory to reflect Requirements in EOP-011, IRO-010, and TOP-003 associated with collecting cold weather data during forecasted cold weather and updating Operating Plans appropriately. <ul style="list-style-type: none"> Generation resources are requested to update their low temperature limits if changed from recent eDART Data Request entry. The Cold Weather Advisory Process keeps the cold weather operating limit opened in eDART for members to confirm/update data as needed (presentation). 	Complete
<ul style="list-style-type: none"> In May 2023, NERC issued an Essential Actions to Industry (NERC Alert) Cold Weather Preparations for Extreme Weather Events III. As a result, PJM expanded its Data Request to include a resource’s Extreme Cold Weather Temperature (ECWT) and related data. References to Data Requests may be found in Manual 1 Control Center and Data Exchange Requirements⁹ Attachment A Data Specifications; Manual 14D, Generator Operational Requirements¹⁰ 7.3.5 Fuel, Emissions and Operational Data Reporting; and Manual 13, Emergency Operations¹¹ 3.3 Cold Weather Advisory/Alert, Member Actions 	Complete

FERC Recommendation 1g	
A. Generator Cold Weather Reliability	
Complete preparations for winter no later than the earliest first freeze date for the generating unit’s location and maintain preparations until after the last freeze date.	
Impact: Generation Owners	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Analyze (resources) Cold Weather Operating Limit (CWOL) and (NERC Registered) Extreme Cold Weather Temperature (ECWT) and resource performance. 	Ongoing

⁹ [PJM Manual 1, Control Center and Data Exchange Requirements](#) (PDF)

¹⁰ [PJM Manual 14D, Generator Operational Requirements](#) (PDF)

¹¹ [PJM Manual 13, Emergency Operations](#) (PDF)

FERC Recommendation 1g	
<ul style="list-style-type: none"> PJM Manual 14D Generator Operational Requirements¹², 7.5.2 Generation Resource Preparation and Cold Weather Checklist This should be done prior to the local National Oceanic and Atmospheric Administration (NOAA) first frost date. 1B' and Attachment N: Cold Weather Preparation Guideline and Checklist. 	Complete
<p>PJM Winter Storm Elliott Recommendations (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > Associated Materials)</p> <ul style="list-style-type: none"> Reinforce and clarify expectations for Cold Weather Advisories and Cold Weather Alerts. – <i>Work Area: Procedures</i> 	

FERC Recommendation 2	
<p>A. Generator Cold Weather Reliability Initiate a technical review of the individual causes of cold-weather-related unplanned generation outages caused by mechanical/electrical issues during the event.</p>	
Impact: NERC	
SUMMARY OF ACTIONS:	STATUS
<ul style="list-style-type: none"> NERC is in the process of contracting with a third party to perform technical review. PJM has reached out to NERC to provide assistance and future actions are pending based on the third party's schedule. 	Pending

FERC Recommendation 3	
<p>A. Generator Cold Weather Reliability Collaborate with FERC staff to study the overall availability and readiness of black start units to operate during cold weather conditions.</p>	
Impact: Joint NERC-Regional Entity Team	
SUMMARY OF ACTIONS:	STATUS
<ul style="list-style-type: none"> March 2024 – NERC and Regional Entity team formed to study the overall availability and readiness of blackstart units to operate during cold weather conditions. ReliabilityFirst (RF) requested Transmission Owner System Restoration Plans and RF may reach out directly to Transmission Owners and Generation Owners regarding this study. PJM to provide updates as requested. 	Pending
<ul style="list-style-type: none"> Recent NERC Announcement: ERO Enterprise to Perform Blackstart Study of Eastern, Western Interconnections as Recommended by Winter Storm Elliott Report. ERO Enterprise staff, in collaboration with FERC, will conduct a joint review of the availability and readiness of the blackstart generators during cold weather conditions in the U.S. portions of the Eastern and Western Interconnections. The study team aims to gather and analyze the results for this joint review by the end of 2024 and issue a report in the first quarter of 2025 with recommendations to improve reliability.¹³ 	Information

¹² [PJM Manual 14D, Generator Operational Requirements](#) (PDF)

¹³ [ERO Enterprise to Perform Blackstart Study of Eastern, Western Interconnections as Recommended by Winter Storm Elliott Report](#)

FERC Recommendation 4, 4a, 4b, 4c

B. Natural Gas Infrastructure Cold Weather Reliability

4. Legislation to establish reliability rules for natural gas infrastructure necessary to support the grid and natural gas infrastructure necessary to support the grid and natural gas local distribution companies that address the needs described in 4(a), (b) and (c)

4a. Address the need for natural gas infrastructure reliability rules:

1. Requiring cold weather preparedness plans (from wellhead through pipeline)
2. Freeze protection measures and operating measures for when extreme cold weather periods are forecast and during extreme cold weather periods

4b. Address the need for regional natural gas communications coordinators with situational awareness of the natural gas infrastructure that can:

1. Share timely operational communications throughout the natural gas infrastructure chain.
2. Communicate potential issues to grid reliability entities.

4c. Address the need to require natural gas infrastructure entities to identify natural gas infrastructure loads that:

1. Should be designated as critical for priority treatment during load shed
2. Provide criteria for identifying such critical loads.

Impact: Congress & State Legislatures

SUMMARY OF ACTIONS:

STATUS

<ul style="list-style-type: none"> • <i>November 2023 – NARUC Gas-Electric Alignment for Reliability (GEAR) Working Group</i> <ul style="list-style-type: none"> – (Findings from NAESB Gas-Electric Harmonization Forum, the Reliability Alliance Report developed by NGSA, INGAA and EPSA, and the FERC/NERC analyses of Winter Storms Uri and Elliott) Convened by National Association of Regulatory Utility Commissioners (NARUC) and chartered in November 2023 for 15 months to (update as of August 22, 2024) "bring together state regulators and industry representatives to develop solutions to better align the gas and electric industries to maintain and improve the reliability of the gas and electric energy system."¹⁴ NARUC named PJM Sr. Vice President of Operations Michael Bryson to serve on the association's new Gas-Electric Alignment for Reliability initiative, also known as GEAR (announcement). – Gas-Electric Alignment for Reliability (GEAR) is chartered for a period of fifteen (15) months, as of this 21st day of November 2023. GEAR is a working group that will bring together state regulators and industry representatives to develop solutions to better align the gas and electric industries to maintain and improve the reliability of the gas and electric energy systems on which our nation depends for power. GEAR intends to gather regulator and industry stakeholder feedback and recommend solutions to better harmonize communication protocols, operations and planning of the gas and electric systems and markets. Findings from the North American Energy Standards Board Gas-Electric Harmonization Forum, the Reliability Alliance Report developed by NGSA, INGAA and EPSA, and the analyses of Storms Uri and Elliott by the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation, will serve as a starting point for the working group.¹⁵ 	<p>In Progress</p>
<ul style="list-style-type: none"> • Multi-State (ISO-NE, MISO, SPP, and PJM) white paper Strategies for Enhanced Gas/Electric Coordination: A Blueprint for National Progress. 	<p>Complete</p>
<ul style="list-style-type: none"> • PJM is a North American Energy Standards Board (NAESB) member and participates in the NAESB Gas Electric Harmonization Forum (GEH). PJM has provided NAESB GEH updates at the PJM Electric Gas Coordination Senior Task Force (EGCSTF)¹⁶. The NAESB GEH has and continues to conduct meetings in an effort to address the multiple natural gas related 'FERC Inquiry Reports' from both Winter Storm Uri and Winter Storm Elliott. A summary of GEH meetings, including staff notes, meeting recordings, presentations, surveys and comments, and other related supplemental information may be found in the Gas Electric Harmonization Forum Report (PDF). 	<p>Complete</p>

¹⁴ [FERC Reliability Spotlight: Cold Weather Preparedness](#)

¹⁵ [National Association of Regulatory Utility Commissioners \(NARUC\) Taskforce on Gas-Electric Alignment for Reliability \(GEAR\)](#)

¹⁶ [Example EGCSTF NAESB update presentation \(PDF\)](#)

FERC Recommendation 4, 4a, 4b, 4c

PJM Winter Storm Elliott Recommendations (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > [Associated Materials](#))

- Work with states to discuss opportunities to increase prioritization of gas for usage in electric power production. – *Work Area: Gas-Electric Coordination*

FERC Recommendation 5

C. Natural Gas-Electric Coordination for Cold Weather Reliability

Convene natural gas infrastructure entities, electric grid operators and LDCs to identify improvements in communication during extreme cold weather events to enhance situational awareness.

Impact: North American Energy Standards Board

SUMMARY OF ACTIONS:

STATUS

<ul style="list-style-type: none"> • Participants prepared multiple work papers, some of which include proposed revisions to the NAESB Wholesale Gas Quadrant Business Practice Standards. Proposals for consideration include communication protocols to provide notice of weather conditions that could impact or are impacting upstream natural gas production, processing, and gathering; enhanced granularity of locational information provided in critical notices; and centralized posting of gas-electric coordination information by interstate pipelines (update as of 8/22/2024).¹⁷ 	<p>Information</p>
<ul style="list-style-type: none"> • NAESB Board of Directors created an annual plan in response to this recommendation. The NAESB Board of Directors established a 2nd Quarter, 2024 completion date for standards development, consistent with timeline identified by FERC. PJM is a North American Energy Standards Board (NAESB) member and participates in the NAESB Gas Electric Harmonization Forum (GEH). PJM has provided NAESB GEH updates at the PJM Electric Gas Coordination Senior Task Force (EGCSTF).¹⁸ The NAESB GEH has and continues to conduct meetings in an effort to address the multiple natural gas related 'FERC Inquiry Reports' from both Winter Storm Uri and Winter Storm Elliott. A summary of GEH meetings, including staff notes, meeting recordings, presentations, surveys and comments, and other related supplemental information may be found in the Gas Electric Harmonization Forum Report and NERC as part of its recommendation.¹⁹ 	<p>Information</p>

¹⁷ [FERC Reliability Spotlight: Cold Weather Preparedness](#)

¹⁸ [Example EGCSTF NAESB update presentation](#) (PDF)

¹⁹ [NAESB Bulletin, November–February 2024, Volume 16, Issue 3](#) (PDF)

FERC Recommendation 6	
C. Natural Gas-Electric Coordination for Cold Weather Reliability Consider whether to order Commission-jurisdictional natural gas entities to provide the Commission with one-time reports describing their roles in extreme cold weather events.	
Impact: FERC	
SUMMARY OF ACTIONS:	STATUS
<ul style="list-style-type: none"> This specific recommendation is targeted towards Commission-jurisdictional natural gas entities which does not include PJM. 	Industry Dependent

FERC Recommendation 7	
C. Natural Gas-Electric Coordination for Cold Weather Reliability Perform studies to analyze whether additional natural gas infrastructure is needed to support the reliability of the electric grid and meet the needs of natural gas local distribution companies.	
Impact: Independent Research Group	
SUMMARY OF ACTIONS:	STATUS
<ul style="list-style-type: none"> PJM is currently collaborating with the gas and electric industry, including DOE and NERC regarding the development of a DOE supported pilot area study intended to assess gas infrastructure resource adequacy in light of increased penetration of intermittent generating resources combined with significant increases in electric load growth. This study is anticipated to kick off in Q3/Q4 2024 and initially focus on a portion of the PJM footprint as a starting point. 	Industry Dependent

FERC Recommendation 8	
D. Electric Grid Operations Cold Weather Reliability Assess whether new processes/changes are needed to address anticipated capacity shortages or transmission system-related reliability problems during extreme cold weather events.	
Impact: Balancing Authorities	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> PJM used manual multi day commitments tools in Winter Storm Gerri. 	Complete
<ul style="list-style-type: none"> Reserve Certainty Senior Task Force, Issue Charge, Key Work Activity #3 (PDF): Reserve Offer structure appropriately reflects resource capabilities and aligns with resource fuel procurement. 	In Progress
<i>PJM Electric Gas Coordination Senior Task Force, Key Work Activities:</i> <ul style="list-style-type: none"> Establish areas of common understanding (e.g. market solution is ideal, reliability event avoidance, equitable) Examine possible improvements to coordination and emergency procedures between PJM and natural gas pipelines to ensure reliable operation of the bulk electric system in the PJM Region; Examine potential modifications to PJM’s Economic Dispatch model that accounts for fuel limitations Examine the assumptions of pipeline flexibility used in PJM reliability planning. Examine PJM situational awareness of market sellers’ fuel supply. Examine potential market solutions to improve fuel procurement flexibility, modeling and optimization of gas and electric market alignment. 	Complete

FERC Recommendation 8

D. Electric Grid Operations Cold Weather Reliability

Assess whether new processes/changes are needed to address anticipated capacity shortages or transmission system-related reliability problems during extreme cold weather events.

Impact: Balancing Authorities

SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Updated internal Operating Memos and Tools to reflect updated guidance, enhanced Dispatch visualization of fuel information, and long lead unit commitment. 	Complete

PJM Winter Storm Elliott Recommendations (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > [Associated Materials](#))

- Evaluate triggers for increasing operating reserves based on risks imposed by extreme or unusual weather, renewable resource uncertainty and resource performance uncertainty – *Work Area: Procedures*
- Evaluate multiday commitment processes to provide greater certainty of fuel supply during critical operating periods with a focus on weekends – *Work Area: Gas-Electric Coordination*
- Evaluate including fuel-specific information in the capacity accreditation model (dual fuel, firm/non-firm gas, on-site fuel requirements etc.) – *Work Area: Gas-Electric Coordination*
- Conduct training for staff involved in updating parameter limited schedules and price schedules, focusing on time-to-start parameters – *Work Area: Unit Status and Unit Parameters*
- Conduct training for staff involved in updating parameter limited schedules and price schedules, focusing on time-to-start parameters – *Work Area: Unit Status and Unit Parameters*
- Review opportunities to improve synchronized reserve response – *Work Area: Resource Performance*
- Review and update the Temporary Exception and Real-Time Value processes for cold weather advisories, alerts, conservative operations and pipeline operational flow order to ensure accurate offer information from generation resources – *Work Area: Unit Status and Unit Parameters*

FERC Recommendation 9

D. Electric Grid Operations Cold Weather Reliability

Improve short-term load forecasts for extreme cold weather periods by implementing lessons and practices identified in the report and sharing newly identified effective practices with peer BAs.

Impact: Balancing Authorities

SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> PJM presentations on NERC Webinar: Preparation for Cold Weather conducted on September 7, 2023 by Stephanie Schwarz (presentation); PJM Short-Term Load Forecasting Overview (presentation) 	Complete
<ul style="list-style-type: none"> Process for recognizing temperature changes to Dispatch: PJM internal email alerts – large zonal temperature changes that are forecasted. 	Complete

Forecasting updates that occurred following WSE:

- | | |
|--|-----------------|
| <ul style="list-style-type: none"> Development of a range of probabilistic forecasts using the long-term planning model to benchmark the range of extremes and validate short-term models. Assessing historic loads and load forecast model error from occasions with similar temperatures to inform manual adjustments to load forecast. Leveraging parallel short-term models based on an expanded historical data set compared to what is used in the current short-term model to include past extreme weather events that fall outside the training period of the primary models. | Complete |
|--|-----------------|

FERC Recommendation 9	
<ul style="list-style-type: none"> Evaluation of opportunities for improvements to the extreme weather load forecast processes and methodology with independent peer analysis. 	Complete
<ul style="list-style-type: none"> Evaluation of opportunities for coordination with Planning load forecast. 	Complete
<p>PJM Winter Storm Elliott Recommendations (See Progress Summaries on PJM.com > Committees & Groups > Issue Tracking > Issue Details > Associated Materials)</p> <ul style="list-style-type: none"> Evaluate opportunities to improve extreme weather load forecast processes and methodology – <i>Work Area: Load Forecasting</i> 	

FERC Recommendation 10	
<p>D. Electric Grid Operations Cold Weather Reliability Sponsor joint-regional reliability assessments of electric grid conditions that could occur during extreme cold weather events.</p>	
<p>Impact: Resource Planners and LSEs</p>	
SUMMARY OF PJM ACTIONS:	STATUS
<ul style="list-style-type: none"> Review the NERC Winter Reliability Assessment and current OATF practices 	Complete
<ul style="list-style-type: none"> Work with NERC Reliability Assessment Subcommittee (RAS)²⁰ in completing the evaluation of Recommendation #10 in preparation of the NERC Winter Reliability Assessment, which includes all six North American Bulk Power System Regional Entities. The RAS reviews, assesses, and reports on the overall reliability (adequacy and security) impacting the bulk power system, both existing and as planned. 	Ongoing
<ul style="list-style-type: none"> PJM holds pre-summer and pre-winter meetings with its neighboring entities to discuss expected system conditions for the upcoming peak season. During the pre-winter meeting, one of the items discussed is the capacity position for each entity and their expected reliance on the neighboring systems while assuming extreme generator unavailability. 	Ongoing
<ul style="list-style-type: none"> PJM participates in interregional studies within ReliabilityFirst (RF) and SERC Reliability Corporation 	Ongoing

FERC Recommendation 11	
<p>D. Electric Grid Operations Cold Weather Reliability Conduct a study of the state of the Eastern Interconnection during Dec. 23–24, 2022, to examine dynamic stability and system inertia and determine how close the interconnection may have been to triggering an under-frequency load shed event.</p>	
<p>Impact: Team of Subject Matter Experts</p>	
SUMMARY OF ACTIONS:	STATUS
<ul style="list-style-type: none"> January 2024 – Eastern Interconnection Planning Collaborative (EIPC) began review. PJM continues to participate and provide support as requested. 	In Progress

²⁰ [NERC Reliability Assessment Subcommittee \(RAS\)](#)